

**WHAT IS CLAIMED IS:**

1. A tilt servo system comprising:

a sensor for detecting a tilt angle of a light beam emitted

5 from a pickup to an information storage medium;

a correction device for correcting a tilt angle of a light beam relative to said information storage medium; and

10 a controller for allowing said correction device to correct the tilt angle of said light beam in accordance with a sensor output of said sensor, wherein

said controller employs, as a reference tilt error, a sensor output delivered from said sensor when said pickup is located opposite to a predetermined position of said information storage medium and as a reference tilt correction quantity, a tilt correction quantity set in order to allow said correction device to correct the tilt angle of said light beam in response to said reference tilt error, and

when said pickup is located opposite to a position other than said predetermined position of said information storage medium, 20 said controller employs a difference between a sensor output delivered by said sensor and said reference tilt error as a relative correction quantity and controls said correction device in accordance with a tilt correction quantity obtained by adjusting said reference correction quantity according to said relative 25 correction quantity to thereby correct the tilt angle of said light beam.

2. The tilt servo system according to claim 1, wherein  
said sensor is a tilt sensor for emitting a predetermined light  
beam to said information storage medium to detect said tilt angle  
in accordance with an angle deviation of a reflected light beam.

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3. The tilt servo system according to claim 1, wherein  
when said pickup is located opposite to said information  
storage medium at two different positions, said sensor determines  
said tilt angle in accordance with a ratio of a difference between  
10 two separations away from said information storage medium to a  
distance between said two positions.

4. A tilt servo system for correcting a tilt angle between an objective  
lens incorporated into a pickup and an information storage medium,  
15 comprising:

a phase correction device for adjusting a phase thereof  
relative to a light beam incident from a light source and allowing  
said information storage medium to be illuminated with said light  
beam via said objective lens;

20 a storage device for storing drive data for driving said phase  
correction device to adjust said phase, said drive data being  
associated with each of a plurality of pre-estimated tilt angles;

a tilt sensor for detecting a tilt error of said objective  
lens relative to said information storage medium; and

25 a controller for producing a tilt correction quantity by  
correcting said drive data stored in said storage device in accordance  
with the tilt error detected by said tilt sensor to drive said phase

correction device according to said tilt correction quantity,  
wherein

said controller performs pre-processing to make a tilt  
correction by moving said pickup to a predetermined area side of  
5 said information storage medium and by adjusting a phase of said  
phase correction device in accordance with the drive data stored  
in said storage device, and to employ a tilt error detected by the  
tilt sensor upon said tilt correction as reference tilt error data  
and the drive data serving for said tilt correction as a reference  
10 tilt correction quantity, and

after said pre-processing, said controller produces said tilt  
correction quantity by acquiring from said storage device the drive  
data corresponding to a relative correction quantity equivalent  
to a difference between a tilt error detected by said tilt sensor  
15 as said pickup moves and said reference tilt error data, and adding  
said drive data to said reference correction quantity.

5. A tilt servo system for correcting a tilt angle between an objective  
lens incorporated into a pickup and an information storage medium,  
20 comprising:

an actuator for adjusting an angle of said objective lens  
relative to said information storage medium;

a storage device for storing drive data for driving said  
actuator to adjust the angle of said objective lens, said drive  
25 data being associated with each of a plurality of pre-estimated  
tilt angles;

a tilt sensor for detecting a tilt error of said objective

lens relative to said information storage medium; and  
a controller for producing a tilt correction quantity by  
correcting said drive data stored in said storage device in accordance  
with the tilt error detected by said tilt sensor to drive said actuator  
5 according to said tilt correction quantity, wherein

said controller performs pre-processing to make a tilt  
correction by moving said pickup to a predetermined area side of  
said information storage medium and by driving said actuator in  
accordance with drive data stored in said storage device, and to  
10 employ a tilt error detected by the tilt sensor upon said tilt  
correction as reference tilt error data and the drive data serving  
for said tilt correction as a reference tilt correction quantity,  
and

after said pre-processing, said controller produces said tilt  
15 correction quantity by acquiring from said storage device the drive  
data corresponding to a relative correction quantity equivalent  
to a difference between a tilt error detected by said tilt sensor  
as said pickup moves and said reference tilt error data, and adding  
said drive data to said reference correction quantity.

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6. A tilt servo system for correcting a tilt angle between an objective  
lens incorporated into a pickup and an information storage medium,  
comprising:

a phase correction device for adjusting a phase thereof  
25 relative to a light beam incident from a light source and allowing  
said information storage medium to be illuminated with said light  
beam via said objective lens;

a storage device for storing drive data for driving said phase correction device to adjust said phase, said drive data being associated with each of a plurality of pre-estimated tilt angles;

5 a focus servo device for controlling the position of said objective lens with respect to said information storage medium; and

a controller for producing a tilt correction quantity equivalent to a tilt angle in accordance with a separation between said information storage medium and said objective lens, when focused 10 by said focus servo device, to drive said phase correction device according to the drive data in said storage device corresponding to said tilt correction quantity, wherein

said controller performs pre-processing: for moving said pickup to a reference position on a predetermined area side of said 15 information storage medium to determine, as reference separation value data, a separation between said objective lens focused by said focus servo device and said information storage medium; for further moving said pickup from said reference position at appropriate intervals to determine, as separation value data, a 20 separation between said objective lens focused by said focus servo device and said information storage medium at each position of movement at each interval of movement; for determining an angle of inclination at each position of movement from a ratio of a difference between separation value data at said mutually adjacent 25 positions of movement to an interval of movement therebetween and also for determining a reference angle of inclination from a ratio of a difference between said reference separation value data at

said reference position and separation value data at a position of movement adjacent thereto to an interval of movement therebetween; and for further employing a difference between the reference angle of inclination and an angle of inclination at each position of movement  
5 as a relative correction quantity and the drive data in said storage device corresponding to the reference angle of inclination as a reference tilt correction quantity, and

after said pre-processing, said controller determines said tilt correction quantity, as said pickup moves, by adding the drive  
10 data in said storage device corresponding to the relative correction quantity at each of said positions of movement to said reference correction quantity.

7. A tilt servo system for correcting a tilt angle between an objective lens incorporated into a pickup and an information storage medium,  
15 comprising:

an actuator for adjusting an angle of said objective lens relative to said information storage medium;

a storage device for storing drive data for driving said  
20 actuator to adjust the angle of said objective lens, said drive data being associated with each of a plurality of pre-estimated tilt angles;

a focus servo device for controlling the position of said objective lens with respect to said information storage medium;  
25 and

a controller for producing a tilt correction quantity equivalent to a tilt angle in accordance with a separation between

said information storage medium and said objective lens, when focused by said focus servo device, to drive said actuator according to the drive data in said storage device corresponding to said tilt correction quantity, wherein

5       said controller performs pre-processing: for moving said pickup to a reference position on a predetermined area side of said information storage medium to determine, as reference separation value data, a separation between said objective lens focused by said focus servo device and said information storage medium; for  
10      further moving said pickup from said reference position at appropriate intervals to determine, as separation value data, a separation between said objective lens focused by said focus servo device and said information storage medium at each position of movement at each interval of movement; for determining an angle  
15      of inclination at each position of movement from a ratio of a difference between separation value data at said mutually adjacent positions of movement to an interval of movement therebetween and also for determining a reference angle of inclination from a ratio of a difference between said reference separation value data at  
20      said reference position and separation value data at a position of movement adjacent thereto to an interval of movement therebetween, respectively; and for further employing a difference between the reference angle of inclination and an angle of inclination at each position of movement as a relative correction quantity and the drive  
25      data in said storage device corresponding to the reference angle of inclination as a reference tilt correction quantity, and after said pre-processing, said controller determines said

tilt correction quantity, as said pickup moves, by adding the drive data in said storage device corresponding to the relative correction quantity at each of said positions of movement to said reference correction quantity.